Safety in extremes

German company ILS designs and builds custom chemical R&D testing units, primarily for customers in the petrochemical industry, integrating robotic components and reaction chambers into glove box set-ups that can withstand temperatures of 400 °C and conditions up to 100 times atmospheric pressure.

Integrated Lab Solutions (ILS), based in Europe's largest science park in Berlin, Germany, designs, develops and constructs bespoke chemical R&D testing units for its worldwide client base in the petrochemical, chemical and pharmaceutical industries. Dr Anton Nagy, founder and CEO of ILS, said: "We are a relatively low volume supplier of tailored solutions to a niche market, integrating both specialized and standard robotic components from various suppliers into customized set-ups for our clients. Our experienced engineers build and test all the units before they are sent out to customers, optimizing the chemical processes here within our own laboratories. Based on the expertise we have built in this area, we are also expanding our contract R&D services in catalyst testing, whether that's analyzing many different compounds under similar operating conditions, or looking at one or two under different conditions in order to optimize a process."

Safety is a major concern for all the units created by ILS, as Anton explained: "The systems we're assembling tend to be for high pressure, high temperature applications, typical environments for a refinery or a petrochemical R&D lab. These conditions can be quite demanding when it comes to components, and we are looking for robustness balanced with a good product quality to cost ratio. Safety is understandably a very important issue for us and for our customers – if a reactor containing hydrogen at 100 bars pressure and at 300 °C vents by accident, it is a very dangerous situation. This is one of the main reasons we frequently choose Tecan components. They are extremely robust and reliable, performing repetitive tasks day after day; it's obvious that they have been developed and perfected over a long period of time. We tend to do fairly unconventional things with them, but the way they have been made makes it easy for us to do that, and the detailed product information, dimensions and diagrams really help us as an OEM supplier."

"Controlling the units we assemble is a real challenge – all the systems we deliver are fully automated, but we can't simply direct actions from a PC. Instead we operate on really robust, industrial process control systems that monitor around 200 sensors or control points, constantly reading temperature and pressure and generating new set points to control parameters. The way that the control systems of the Tecan components are designed makes it very easy to incorporate them into these systems; our engineers need only write very simple scripts to get good, seamless integration."

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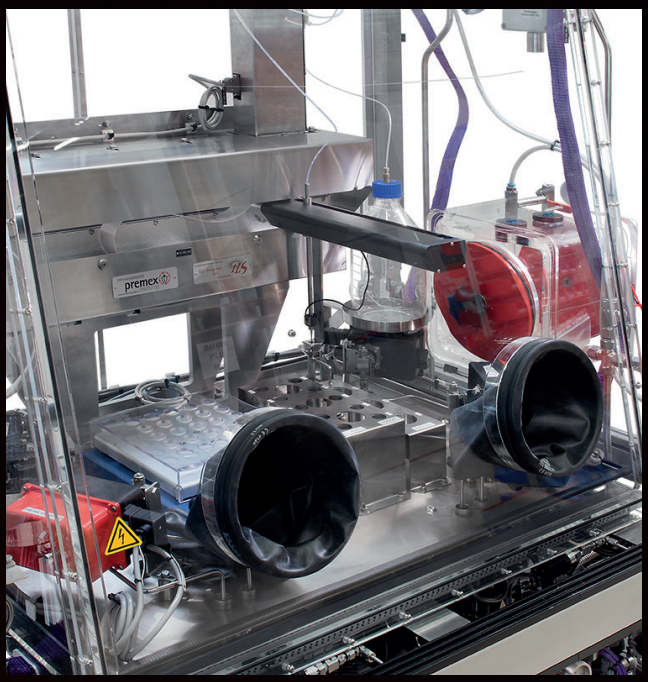
"For example, we recently created a set-up using a Cavro® Robotic Sample Processor (RSP) in an inert glove box atmosphere for a major catalyst manufacturer working with moisture- and air-sensitive catalysts. This module is effectively the heart of the system, and everything else is parked around it. You can think of it as the kitchen that cooks the catalysts, shuffles around the different ingredients and, in the end, when the catalysts are finished, it picks up the sample using a Tecan Cavro syringe pump, and injects it into the reactor. The robot does exactly what we need it to do; it is really fast, very accurate and excellent from a safety point of view."

"Tecan components also frequently have helpful add-on features – some of which also have a significant impact on safety – that you don't tend to find on equipment from just any supplier. For example, if an obstacle gets in the way of an RSP, it recognizes its position, always knows where it is and where to start again. You can demonstrate this simply by putting your hand in the way of the arm, which gives our customers considerable confidence in the set-up. This is really important, especially for our petrochemical clients, some of whom have a real aversion to having a fast-moving robotic arm in what is potentially a dangerous glove box environment. We've had situations in the past where somebody has accidentally put a bottle somewhere where it doesn't belong, and this simply is not an issue. Our Tecan representative is also extremely knowledgeable, multilingual and pragmatic, guiding and supporting us with his experience and knowledge of products, applications and the market and, when I bounce ideas off him, he comes back with very realistic solutions very quickly," Anton concluded.

ILS' bespoke systems are designed specifically for high pressure, high temperature applications



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